WHAT IS CLAIMED IS:

1   1.   A method for providing synchronization in a binary data stream,

2   comprising:

3   receiving a binary data stream;

4   generating a synchronization mark having at least one isolated peak into at

5   least one point in the data stream;

6   forming a encoded data stream by concatenating the synchronization mark

7   with the received binary data; and

8   during decoding, detecting the synchronization mark based on error

9   propagation occurring adjacent to the at least one isolated peak of the synchronization

10   mark.

1   2.   The method of claim 1, further comprising:

2   concatenating the received binary data stream with a known pattern.

1   3.   The method of claim 2, wherein the known pattern comprises a VFO

2   pattern having a sequence of "10."

1   4.   The method of claim 3, wherein the synchronization mark is

2   determined by concatenating a synchronization symbol with the VFO pattern.

1   5.   The method of claim 3, wherein forming the encoded data stream by

2   concatenating the synchronization mark with the received binary data further

3   comprises:

4   concatenating the synchronization mark with at least one bit from the VFO

5   pattern to obtain a modified synchronization pattern having more bits than the

6   synchronization mark.

1   6.   The method of claim 1, further comprising:

2   concatenating the received binary data stream with at least one

3   resynchronization mark, wherein the at least one resynchronization mark is located in

4   the middle of the received binary data stream and the resynchronization mark and the

5   encoded binary data are different.

1   7.   The method of claim 6, further comprising:

2   detecting the at least one resynchronization mark to verify that the decoding

3   process is operating correctly.

1   8.   The method of claim 1, wherein a data section of the received binary

2   data is encoded at a rate of m/n.

1   9.   The method of claim 8, wherein the synchronization mark comprises

2   0100010000101001 and the m/n encoding rate comprises a 16/17 encoding rate.

1   10.   The method of claim 8, wherein the data section is encoded at an

2   encoded rate of m/n and the resynchronization mark comprises a fixed plurality of

3   bits equivalent to bytes of the encoded binary data.

1   11.   The method of claim 10, wherein the resynchronization mark

2   comprises 100000000010000000000010000000000001 and the m/n rate encoded bit

3   sequence comprises a 16/17 rate coded sequence.

1   12.   The method of claim 1, wherein detecting the synchronization mark

2   comprises detecting an even number of 1s between peaks and the error pattern "101"

3   around a peak.

1   13.   A system for providing synchronization in a binary data stream,

2   comprising:

3   means for receiving a binary data stream;

4   means for generating a synchronization mark having at least one isolated peak

5   into at least one point in the data stream;

6   means for forming a encoded data stream by concatenating the

7   synchronization mark with the received binary data; and

8   means for during decoding, detecting the synchronization mark based on error

9   propagation occurring adjacent to the at least one isolated peak of the synchronization

10 mark.

1   14.   The system of claim 13, further comprising:

2   means for concatenating the received binary data stream with a known

3   pattern.

1   15.   The system of claim 14, wherein the known pattern comprises a VFO

2   pattern having a sequence of "10."

1   16.   The system of claim 15, wherein the synchronization mark is

2   determined by concatenating a synchronization symbol with the VFO pattern.

1   17.   The system of claim 15, wherein the means for forming the encoded

2   data stream by concatenating the synchronization mark with the received binary data

3   further concatenates the synchronization mark with at least one bit from the VFO

4   pattern to obtain a modified synchronization pattern having more bits than the

5   synchronization mark.

1   18.   The system of claim 13, further comprising:

2   means for concatenating the received binary data stream with at least one

3   resynchronization mark, wherein the at least one resynchronization mark is located in

4   the middle of the received binary data stream and the resynchronization mark and the

5   encoded binary data are different.

1   19.   The system of claim 18, further comprising:

2   means for detecting the at least one resynchronization mark to verify that the

3   decoding process is operating correctly.

1   20.   The system of claim 13, wherein a data section of the received binary

2   data is encoded at a rate of m/n.

1   21.   The system of claim 20, wherein the synchronization mark comprises

2   01000100001010001 and the m/n encoding rate comprises a 16/17 encoding rate.

1   22.   The system of claim 20, wherein the data section is encoded at an

2   encoded rate of m/n and the resynchronization mark comprises a fixed plurality of

3   bits equivalent to bytes of the encoded binary data.

1   23.   The system of claim 22, wherein the resynchronization mark

2   comprises 1000000000100000000001000000000001 and the m/n rate encoded bit

3   sequence comprises a 16/17 rate coded sequence.

1   24.   The system of claim 13, wherein the means for detecting the

2   synchronization mark detects an even number of 1s between peaks and the error

3   pattern "101" around a peak.

1   25.   The system of claim 13, further comprising:

2   a Input/Output device, wherein the system for providing the synchronization

3 is implemented in the I/O device.

1   26.   The system of claim 25, wherein the I/O device comprises a magnetic

2 tape drive.

1   27.   An article of manufacture including code for providing

2 synchronization in a binary data stream, wherein the code causes operations to be

3 performed comprising:

4   receiving a binary data stream;

5   generating a synchronization mark having at least one isolated peak into at

6 least one point in the data stream;

7   forming a encoded data stream by concatenating the synchronization mark

8 with the received binary data; and

9   during decoding, detecting the synchronization mark based on error

10 propagation occurring adjacent to the at least one isolated peak of the synchronization

11 mark.

1   28.   The article of manufacture of claim 27, further comprising:

2   concatenating the received binary data stream with a known pattern.

1   29.   The article of manufacture of claim 28, wherein the known pattern

2 comprises a VFO pattern having a sequence of "10."

1   30.   The article of manufacture of claim 29, wherein the synchronization

2 mark is determined by concatenating a synchronization symbol with the VFO pattern.

1   31.   The article of manufacture of claim 29, wherein forming the encoded

2   data stream by concatenating the synchronization mark with the received binary data

3   further comprises:

4   concatenating the synchronization mark with at least one bit from the VFO

5   pattern to obtain a modified synchronization pattern having more bits than the

6   synchronization mark.

1   32.   The article of manufacture of claim 27, further comprising:

2   concatenating the received binary data stream with at least one

3   resynchronization mark, wherein the at least one resynchronization mark is located in

4   the middle of the received binary data stream and the resynchronization mark and the

5   encoded binary data are different.

1   33.   The article of manufacture of claim 32, further comprising:

2   detecting the at least one resynchronization mark to verify that the decoding

3   process is operating correctly.

1   34.   The article of manufacture of claim 27, wherein a data section of the

2   received binary data is encoded at a rate of m/n.

1   35.   The article of manufacture of claim 34, wherein the synchronization

2   mark comprises 01000100001010001 and the m/n encoding rate comprises a 16/17

3   encoding rate.

1   36.   The article of manufacture of claim 34, wherein the data section is

2   encoded at an encoded rate of m/n and the resynchronization mark comprises a fixed

3   plurality of bits equivalent to bytes of the encoded binary data.

1   37.   The article of manufacture of claim 36, wherein the resynchronization

2   mark comprises 1000000000100000000001000000000001 and the m/n rate encoded

3   bit sequence comprises a 16/17 rate coded sequence.

1   38.   The article of manufacture of claim 27, wherein detecting the

2   synchronization mark comprises detecting an even number of 1s between peaks and

3   the error pattern "101" around a peak.